



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
AIR AND RADIATION

March 23, 2016

Dear ENERGY STAR® Commercial Boiler Manufacturer or Other Interested Party:

On behalf of the U.S. Environmental Protection Agency (EPA), I would like to thank all stakeholders for their contributions to the Version 1.0 ENERGY STAR Commercial Boiler specification. With development of this specification nearing completion, the EPA would like to provide stakeholders with the opportunity to review and discuss the potential addition of boilers between 2.5 MBtu/hr and 5 MBtu/hr, in advance of our release of a Final Draft.

In response to the Draft 1 specification, EPA received stakeholder requests to include commercial packaged boilers over 2.5 MBtu/hr in this Version 1.0 specification. EPA has evaluated these requests and believes adding this class of boilers to the specification serves the interest of purchasers, manufacturing partners, and the environment. Included in this evaluation was an assessment of an appropriate maximum capacity limit for this expanded scope. There was no consensus among commenters about what the maximum firing rate should be, or if there should be one. EPA received no indication that there is a particular size of commercial packaged boiler that is more or less in competition with site-built boilers. However, EPA did learn that there are no independent test labs that are able to test performance above 5 MBtu/hr, which would make verification testing very difficult. Further, while some manufacturers mentioned boilers larger than this within the same product line, analysis of the U.S. Department of Energy (DOE) Compliance Certification Database shows only two models above 5 MBtu/hr that would meet the specification. As such, EPA proposes a maximum capacity of 5 MBtu/hr for this specification.

EPA proposes to set a limit of Combustion Efficiency (CE) > 95.0% for commercial boilers with input rate greater than 2.5 MBtu/hr up to a maximum of 5 MBtu/hr. The CE metric is used to determine compliance with DOE minimum efficiency standards and the proposed level was chosen to be consistent with the 94.0% Thermal Efficiency (TE) level proposed for boilers at or below 2.5 MBtu/hr. To establish the relationship between the CE and TE metrics, EPA analyzed Air-Conditioning, Heating, and Refrigeration Institute (AHRI) certified products directory data, conducted online research, and discussed findings with stakeholders. EPA found that on average, CE was about 1.0% to 1.5% higher than TE as it does not account for jacket losses.

Since EPA is choosing CE to be consistent with TE for smaller boilers, it's worth noting that while some stakeholders supported a 94.0% TE level proposed in the first draft, others suggested lowering the requirement to a minimum condensing level of 90.0% TE. Upon reviewing the AHRI certified products directory, EPA identified a clear distinction between condensing and non-condensing boilers at 92.0% TE. The proposed CE level is equivalent to 94.0% TE and offers a good selection of qualifying models (i.e. 23% of models qualify with

several brands represented) and meaningful energy savings. It also aligns with other existing programs, like DOE's Federal Energy Management Program.

Along with adding a performance requirement for commercial packaged boilers over 2.5 MBtu/hr to a maximum of 5MBtu/hr, EPA will incorporate an additional definition into the Version 1.0 specification. Based on DOE standards in 10 CFR Part 431 Subpart E, the new definition is:

Combustion Efficiency (CE)¹: Performance rating that is equal to 100 percent minus percent flue loss, based on input fuel energy.

Consistent with our practice across all specifications, EPA continues to exclude custom built, field constructed boilers as it difficult to establish standardized criteria for custom built products. Since some heat exchanger and burner combinations that meet the definition of Commercial Packaged Boiler in 10 CFR part 431 are field designed and certified, EPA will also add a specific exclusion for heat exchanger and burner combinations which do not have certified ratings in the heat exchanger Original Equipment Manufacturer (OEM's) equipment manual.

EPA notes that ratings based on an Alternative Efficiency Determination Method (AEDM), and accepted by DOE, are also accepted for ENERGY STAR certification. In addition, DOE is conducting rulemakings to amend its test procedures and energy conservation standards for commercial packaged boilers¹. EPA and DOE will harmonize our requirements for commercial packaged boilers, as needed, as these rulemakings proceed.

Submitting Comments

Stakeholders who wish to provide written comments may send them to Commercialboilers@energystar.gov by **April 12, 2016**. All comments will be posted to the ENERGY STAR Product Development website unless the submitter requests otherwise. The Agency anticipates that the next step in the development process will be a Final Draft, released in April. The specification will be finalized, and products may be certified, in late April. To track EPA's progress in developing the ENERGY STAR Commercial Boilers specification, visit the Product Development website at www.energystar.gov/newspecs and click on "Commercial Boilers".

Please direct any specific questions to Abigail Daken at EPA, daken.abigail@epa.gov or 202-343-9375. Please direct questions or concerns about the test method to Ashley Armstrong at DOE, ashley.armstrong@ee.doe.gov or 202-586-6590. Thank you for taking the time to review this draft specification. I look forward to working with you over the next few months.

Sincerely,



Abigail Daken
U.S. Environmental Protection Agency
ENERGY STAR HVAC Program

¹ The DOE rulemaking docket for energy conservation standards for commercial packaged boilers can be found at <http://www.regulations.gov/#!docketDetail;D=EERE-2013-BT-STD-0030>. The DOE rulemaking docket for its test procedure for commercial packaged boilers can be found at <http://www.regulations.gov/#!docketDetail;D=EERE-2014-BT-TP-0006>.